

IN THE CLAIMS

Claims 1 - 39. (Canceled)

40. (Currently amended) ~~The method of claim 23 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna after every other unsuccessful resend of the transmit unicast packet.

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Claims 41 - 42. (Canceled)

43. (Currently amended) ~~The method of claim 42~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna from the default antenna to the alternate antenna after a number of unsuccessful sends of the transmit unicast packet, wherein the number is adjusted prior to sending the transmit unicast packet a first time based on an expected collision rate in the communications system.

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44. (Currently amended) The method of claim 42 A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna from the default antenna to the alternate antenna after a number of unsuccessful sends of the transmit unicast packet, wherein the number is adjusted prior to sending the transmit unicast packet a first time based on an expected overall load rate of the communications system.

Claims 45 - 49. (Canceled)

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50. (Currently amended) ~~The method of claim 22 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna on every other send of the transmit unicast packet until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

51. (Currently amended) ~~The method of claim 22 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device including at least two antennas, the method comprising:

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designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets; and

for any transmit unicast packet, attempting to send the transmit unicast packet twice on each antenna of the at least two antennas, beginning with the default antenna, until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

52. (Original) The method of claim 51 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then
aborting transmission of the transmit unicast packet.

53. (Original) The method of claim 51 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then

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aborting transmission of the transmit unicast packet;
attempting to send the transmit unicast packet at a lower data rate; and
maintaining the present default antenna designation.

54. (Original) The method of claim 51 further comprising:

if any receive packet that acknowledges the transmit unicast packet is received in response to a
send of the transmit unicast packet, then

if the receive packet that acknowledges the transmit unicast packet is received by the
default antenna, then

maintaining the present default antenna designation; and

otherwise, then

changing which antenna of the at least two antennas is designated as the default
antenna to whichever antenna of the at least two antennas received the receive
packet that acknowledges the transmit unicast packet.

55. (Original) The method of claim 51 further comprising:

if any receive packet that acknowledges the transmit unicast packet is received in response to a
send of the transmit unicast packet, then

maintaining the present default antenna designation.

Claims 56 - 68. (Canceled)

69. (Currently amended) ~~The method of claim 56~~ A method of providing antenna diversity in a communications system that contains an access point that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the access point configured to communicate with a plurality of mobile stations via the transmit and receive packets, the access point including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

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sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

sending each transmit broadcast packet using the default antenna as the transmit antenna, wherein sending each transmit broadcast packet using the default antenna as the transmit antenna allows a first mobile station at another location, the first mobile station having at least two mobile station antennas, to learn which mobile station antenna of the at least two mobile station antennas receives transmit broadcast packets effectively from the access point[.];

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts; and

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets.

Claims 70 - 71. (Canceled)

72. (Currently amended) ~~The method of claim 57 further comprising:~~ A method of providing antenna diversity in a communications system that contains an access point that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the access point configured to communicate with a plurality of mobile stations via the transmit and receive packets, the access point including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

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sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

sending each transmit broadcast packet using the default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna on every other send of the transmit unicast packet until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

73. (Currently amended) ~~The method of claim 56 further comprising:~~ A method of providing antenna diversity in a communications system that contains an access point that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the access point configured to communicate with a plurality of mobile stations via the transmit and receive packets, the access point including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet;

sending each transmit broadcast packet using the default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets; and

for any transmit unicast packet, attempting to send the transmit unicast packet twice on each antenna of the at least two antennas, beginning with the default antenna, until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

74. (Original) The method of claim 73 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then
aborting transmission of the transmit unicast packet.

75. (Original) The method of claim 73 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then
aborting transmission of the transmit unicast packet;

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attempting to send the transmit unicast packet at a lower data rate; and
maintaining the present default antenna designation.

76. (Original) The method of claim 73 further comprising:

if any receive packet that acknowledges the transmit unicast packet is received in response to a
send of the transmit unicast packet, then
maintaining the present default antenna designation.

Claims 77 - 84. (Canceled)

85. (Currently amended) ~~The method of claim 78 further comprising:~~ A method of providing antenna diversity in a communications system that contains a mobile station that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the mobile station configured to communicate with an access point via the transmit and receive packets, the mobile station including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet to the access point;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet from the access point;

listening for all other receive packets, using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in

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transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna after every other unsuccessful resend of the transmit unicast packet.

Claims 86 - 90. (Canceled)

91. (Currently amended) ~~The method of claim 90 further comprising:~~ A method of providing antenna diversity in a communications system that contains a mobile station that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the mobile station configured to communicate with an access point via the transmit and receive packets, the mobile station including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet to the access point;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet from the access point;

listening for all other receive packets, using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of

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receive packets, wherein the receive packets include receive broadcast packets that respectively comprise receive beacon packets; and

changing which of the at least two antennas is designated as the default antenna if two consecutive receive beacon packets have been missed based on the expected time of arrival of the receive beacon packets from the access point.

Claims 92 - 96. (Canceled)

97. (Currently amended) ~~The method of claim 78 further comprising:~~ A method of providing antenna diversity in a communications system that contains a mobile station that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the mobile station configured to communicate with an access point via the transmit and receive packets, the mobile station including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet to the access point;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet from the access point;

listening for all other receive packets, using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

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changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna on every other send of the transmit unicast packet until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

98. (Currently amended) ~~The method of claim 77 further comprising:~~ A method of providing antenna diversity in a communications system that contains a mobile station that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the mobile station configured to communicate with an access point via the transmit and receive packets, the mobile station including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a default antenna, wherein an antenna of the at least two antennas other than the antenna that is designated as the default antenna is an alternate antenna;

sending each transmit unicast packet a first time using the default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet to the access point;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet from the access point;

listening for all other receive packets, using the default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the alternate antenna if the transmit unicast packet is not successfully transmitted by the default antenna after one or more attempts;

changing which antenna of the at least two antennas is the default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets; and

for any transmit unicast packet, attempting to send the transmit unicast packet twice on each antenna of the at least two antennas, beginning with the default antenna, until an overall

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number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

99. (Original) The method of claim 98 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then aborting transmission of the transmit unicast packet.

100. (Original) The method of claim 99 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then aborting transmission of the transmit unicast packet; attempting to send the transmit unicast packet at a lower data rate; and maintaining the present default antenna designation.

101. (Original) The method of claim 99 further comprising:

if any receive packet that acknowledges the transmit unicast packet is received in response to a send of the transmit unicast packet, then

if the receive packet that acknowledges the transmit unicast packet is received by the default antenna, then

maintaining the present default antenna designation; and

otherwise, then

changing which antenna of the at least two antennas is designated as the default antenna to whichever antenna of the at least two antennas received the receive packet that acknowledges the transmit unicast packet.

Claims 102 - 119. (Canceled)

120. (Currently amended) ~~The method of claim 107 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device

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configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts;

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna after every other unsuccessful resend of the transmit unicast packet.

Claims 121 - 126. (Canceled)

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127. (Currently amended) ~~The method of claim 126 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts;

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets, wherein the receive packets include receive broadcast packets that respectively comprise receive beacon packets; and

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changing which of the at least two antennas is designated as the broadcast default antenna if two consecutive receive beacon packets have been missed based on the expected time of arrival of the receive beacon packets from the destination transmission devices.

Claims 128 - 131. (Canceled)

132. (Currently amended) ~~The method of claim 106~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna, wherein sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna allows a first destination transmission device at another location, the first destination transmission device having at least two destination antennas, to learn which destination antenna of the at least two destination receives transmit broadcast packets effectively from the transmission device[.];

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna;

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for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts; and

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets.

Claims 133 - 135. (Canceled)

136. (Currently amended) ~~The method of claim 107 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna;

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for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts;

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets;

changing the transmit antenna by switching between the at least two antennas; and

for any transmit unicast packet, changing the transmit antenna on every other send of the transmit unicast packet until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

137. (Currently amended) ~~The method of claim 106 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit

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packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna; for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts;

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets; and

for any transmit unicast packet to be sent to one destination transmission device of the destination transmission devices, attempting to send the transmit unicast packet twice on each antenna of the at least two antennas, beginning with the destination default antenna, until an overall number of sends of the transmit unicast packet is reached or until a receive packet that acknowledges the transmit unicast packet is received.

138. (Original) The method of claim 137 further comprising:

if no receive packets that acknowledge the transmit unicast packet are received in response to the sends of the transmit unicast packet, then
aborting transmission of the transmit unicast packet.

139. (Original) The method of claim 137 further comprising:

if any receive packet that acknowledges the transmit unicast packet is received in response to a send of the transmit unicast packet, then

using whichever antenna of the at least two antennas received the receive packet that acknowledges the transmit unicast packet as the destination default antenna the first time that any subsequent transmit unicast packet is sent to the one destination transmission device.

Claims 140 - 143. (Canceled)

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144. (Currently amended) ~~The method of claim 106 further comprising:~~ A method of providing antenna diversity in a communications system that contains a transmission device that sends and receives a plurality of transmit and receive packets, respectively, at a single location, the transmission device configured to communicate with a plurality of destination transmission devices via the transmit and receive packets, the transmission device including at least two antennas, the method comprising:

designating one antenna of the at least two antennas as a broadcast default antenna;

designating one antenna of the at least two antennas as a destination default antenna, wherein the destination default antenna and the broadcast default antenna are not necessarily the same antenna of the at least two antennas;

sending each transmit unicast packet a first time using the destination default antenna as a transmit antenna, wherein for any transmit packet, the transmit antenna is whichever antenna of the at least two antennas is used to send the transmit packet, wherein an antenna of the at least two antennas other than the antenna that is designated as the destination default antenna is a destination alternate antenna;

sending each transmit broadcast packet using the broadcast default antenna as the transmit antenna;

listening for each receive packet that acknowledges a previously sent transmit packet using as a receive antenna the transmit antenna that was used to send the previously sent transmit packet, wherein for any receive packet, the receive antenna is whichever antenna of the at least two antennas is used to listen for the receive packet;

listening for all other receive packets using the broadcast default antenna as the receive antenna;

for any transmit unicast packet, sending the transmit unicast packet on the destination alternate antenna if the transmit unicast packet is not successfully transmitted by the destination default antenna after one or more attempts;

changing which antenna of the at least two antennas is the broadcast default antenna in response to predetermined criteria that take into account the success of the transmit antenna in transmission of transmit packets and the success of the receive antenna in reception of receive packets; and

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for any destination transmission device of the destination transmission devices, identifying a corresponding individual antenna of the at least two antennas that is empirically known to communicate successfully with the destination transmission device.

145. (Original) The method of claim 144 further comprising:
changing which of the at least two antennas is designated as the destination default antenna based on the individual antenna and the destination transmission device.
146. (Original) The method of claim 144 further comprising:
for all individual antennas and destination transmission devices, creating an antenna table of the individual antennas and consulting the table to change which of the at least two antennas is designated as the destination default antenna for each respective destination transmission device.
147. (Original) The method of claim 144 further comprising:
for all individual antennas and destination transmission devices, creating an antenna table of the individual antennas and consulting the table to change the transmit antenna for each respective destination transmission device.

Claims 148 - 149. (Canceled)

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